According to another aspect of the invention, a method of recording a signal in a storage medium including a recording area and correlation information recorded in the recording area and indicating correlation between recording densities and recording conditions necessary for a recording apparatus to record a signal at the recording densities includes the steps of loading the correlation information from the storage medium, determining a recording density based on the loaded correlation information, and setting a recording condition based on the determined recording density. The recording apparatus preferably has a plurality of first recording conditions which are necessary for recording a signal and can be selectively set. The correlation information includes a table having a plurality of recording densities and a plurality of second recording conditions corresponding to the plurality of recording densities and each necessary for the recording/reproducing apparatus to record a signal at a corresponding recording density. The determination step includes the steps of comparing the plurality of first recording conditions with the plurality of second recording conditions loaded in the table, selecting a second recording condition in coincidence with the first recording condition among the plurality of second recording conditions based on the result of the comparing step, and specifying a recording density corresponding to the second recording condition selected from the plurality of recording densities. Further preferably, the above method further includes the step of interrupting recording of a signal if none of the second recording conditions is in confidence with each of the first recording conditions based on the result of the comparison step. The determination step preferably includes the steps of comparing the plurality of first recording conditions with the plurality of second recording conditions in the loaded table, selecting a plurality of second recording conditions in coincidence with the first recording conditions from the plurality of second recording conditions, displaying a plurality of recording densities corresponding to the selected plurality of second recording conditions, and specifying one of the displayed plurality of recording densities in response to a specification by the user. The setting step preferably changes the frequency of a synchronizing clock signal used to record a signal in response to the determined recording density. The recording apparatus preferably further includes a frequency divider for generating a synchronizing clock signal. The changing step changes the dividing ratio of the frequency divider depending upon the determined recording density. The storage medium preferably further includes a plurality of recording unit regions for recording prescribed data. The recording densities permit the prescribed data to be equally allocated into the plurality of recording unit regions.

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Brief Summary Text - BSTX (12):

According to yet another aspect of the invention, a method of reproducing a signal from a storage medium including a recording area, correlation information recorded in the recording area and indicating correlation between recording densities and reproducing conditions necessary for a reproducing apparatus to reproduce a signal at the recording densities, and identification information recorded in the recording area for identifying a recording density at which a signal has been recorded includes the steps of loading the correlation information and identification information from the storage medium and setting the reproducing apparatus to a reproducing condition based on the loaded correlation information and identification information. The setting step preferably changes the frequency of a synchronizing clock signal used for reproducing a signal depending upon the recording density of the loaded identification information. The reproducing apparatus preferably further includes a frequency divider for generating a synchronizing clock signal. The changing step changes the dividing ratio of the frequency divider depending upon the recording density of the loaded identification information.

Brief Summary Text - BSTX (13):

Since the storage medium includes the correlation information indicating correlation between recording densities and recording/reproducing conditions, a

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P-picture, 73 denotes P2-picture data, 74 denotes a B-picture header indicating the head of B-pictures, 75 to 79 denote B1- to Bn-picture data, and 80 denotes an end mark indicating the end of the GOP.

Detailed Description Text - DETX (34):
The linear recording density can be made substantially equal between different zones, by varying the disk motor rotational speed between different zones, or by varying the frequency of the data clock during recording and playback.

Detailed Description Text - DETX (40):
The operation of the optical disk drive for such a playback is as shown in FIG. 12. The operation including the following steps is repeated. First, the rotational speed is increased to n-times, and then the video header is detected to read an I-picture, and jump is made to the next GOP. By disposing an I-picture in the video attribute data 50, the disk motor acceleration region and the deceleration region can be set.

Detailed Description Text - DETX (43):
FIG. 14 shows the details of configuration of the digital motion picture image data arrangement in Embodiment 4. Reference numeral 139 denotes wobble pits in the sample format or a mirror surface part for offset correction in the continuous guide groove type, 140 denotes a zone address in the optical disk of a zone constant angular velocity (CAV) rotation system, 141 denotes a sector address for each sector which is a fraction of a GOP, 142 denotes a video GOP address for each video GOP, 143 denotes a video attribute data attendant to a digital motion picture image, and 145 denotes an I-picture header indicating the head of I-picture data 146. Reference numeral 147 denotes I-picture ECC (error correction code) recording the I-picture data error correction code, and 148 denotes a P-picture header indicating the head of P-picture data 149. Reference numeral 150 denotes a scalability mode, 151 denotes the number of frames within the GOP, 152 denotes the GOP structure showing the arrangement of I-, B- and P-pictures, and the like within the GOP, 153 denotes the arrangement and position of data within an I-picture, 154 denotes detailed attribute data such as presence or absence of panning, zooming and scene change, 155 denotes a time code, 156 denotes an address of destination of jump during special playback, 157 denotes an audio mode, 158 denotes a still picture mode, and 159 denotes a spare area.

Detailed Description Text - DETX (45):
FIG. 16 shows the structure of details of the part where I-picture data is recorded on the optical disk. The video header 135 indicates the head of the video data in nth track group, 160 denotes fraction data formed of a plurality ok slices for the top 1/3 part (from the top edge to a first horizontal dividing line 1/3 as measured from the top edge of the screen) of the screen of the I-picture 27. Reference numeral 162 denotes a fraction data formed of a plurality of slices for the middle 1/3 part (from the first horizontal division line to a second horizontal dividing line at 2/3 as measured from the top edge of the screen) of the I-picture 27. Reference numeral 164 denotes a fraction data formed of a plurality of slices for the bottom 1/3 part (from the second horizontal dividing line to the bottom edge of the screen) of the I-picture 27. Reference numeral 161 denotes a sub-header indicating the head of fraction data 162. Reference numeral 163 denotes a sub-header indicating the head of fraction data 164. Reference numeral 148 denotes a P-picture header, 165 denotes a first P-picture data within the GOP, and 166 denotes a header indicating the head of a second P-picture data 167. Reference numeral 168 denotes a header indicating the entirety of each of the digital motion picture image of (n+1)-th and (n+2)-th track groups, and also indicating the head of P-picture data, 169 denotes a header indicating the part 160 where the data for the slices 23 in the upper 1/3 part of the screen of the I-picture 27 is

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FIG.4

Zone No.	Radius (mm)	Rec Frequency (MHz)	Video Sync Blocks	Zone No.	Radius (mm)	Rec Frequency (MHz)	Video Sync Blocks
Zi0	44~47	22.3	101	Zo0	137~140	67.7	307
Zi1	47~50	23.7	108	Zo1	134~137	66.3	300
Zi2	50~53	25.2	114	Zo2	131~134	64.8	294
Zi3	53~56	26.7	121	Zo3	128~131	63.3	287
Zi4	56~59	28.1	128	Zo4	125~128	61.9	280
Zi5	59~62	29.6	134	Zo5	122~125	60.4	274
Zi6	62~65	31.1	141	Zo6	119~122	58.9	267
Zi7	65~68	32.5	147	Zo7	110~113	57.5	261
Zi8	68~71	34.0	154	Zo8	116~119	56.0	254
Zi9	71~74	35.5	161	Zo9	113~116	54.5	247
Zi10	74~77	36.9	167	Zo10	107~110	53.1	241
Zi11	77~80	38.4	174	Zo11	104~107	51.6	234
Zi12	80~83	39.9	181	Zo12	101~104	50.1	227
Zi13	83~86	41.3	187	Zo13	98~101	48.7	221
Zi14	86~89	42.8	194	Zo14	95~98	47.2	214
Zi15	89~92	44.3	201	Zo15	92~95	45.7	207

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Total (1)	19	19	0	-

second group into the audio signal recording area and the video signal recording area, respectively in a sector in the outer area of the optical disk.

Brief Summary Text - BSTX (17):
Moreover, the inner area and outer area of the optical disk may be further divided into plural zones, and the length of each audio signal recording region and video signal recording region in the sector may be varied zone by zone. By using the optical disk having such format, each of the audio signal and video signal of a specific unit is divided into a specified number of blocks, and recorded by distributing the audio blocks and video blocks in a zone of the inner area and a zone of the outer area. Therefore, only by varying the distribution ratio of the number of blocks in the inner and outer areas, audio signals and video signals of specific data rate can be recorded and reproduced easily.

Detailed Description Text - DETX (23):
where t.sub.S, t.sub.ADR, and t.sub.G1 are constant. In the MCAV method, the recording frequency f.sub.REC is varied zone by zone so that the linear recording density (physical length per bit) in the track direction may be nearly constant. Therefore, by increasing f.sub.REC in the outer zones, b.sub.S becomes larger in the outer zones.

Detailed Description Text - DETX (26):
As mentioned above the audio signals and video signals are recorded in a sync block unit of 97 bytes. Accordingly, b.sub.A and by are discrete values (multiples of 97). By contrast, f.sub.REC must be set at a delicate value in order to keep the linear recording density substantially constant in all zones. Therefore, in order to satisfy formula (3), fine adjustment is made by changing t.sub.G2. As explained herein, the method of determining the length of each recording area in the sector in each zone may be attributed to the method of distribution of video blocks.

Detailed Description Text - DETX (45):
The reproduced signal from the optical disk 1 through each optical head is amplified in a corresponding reproduction demodulation circuit 18 connected to the optical head, separated into the address information and other signals, and demodulated by the known art. The demodulated binary data is issued to a read block multiplexer 20. In the read block multiplexer 20, demodulated data from four reproduction demodulation circuits 18 are taken in a specified sequence, and the block synchronism (SYNC) and identification signal (ID) of each sync block are detected. Further, the demodulated data is divided into audio block and video block, and the audio block is issued to an audio decoder 23 and the video block to a video decoder 24. The audio decoder 23 decodes the audio block to obtain an audio signal. The video decoder 24 decodes the video block to obtain a video signal.

Detailed Description Text - DETX (52):
FIG. 20 shows another example of internal constitution of the video encoder 22 in FIG. 6. In the example in FIG. 20, the video signal is entered in two channels. Just like the audio data interleaving unit 28 in the audio encoder 21 shown in FIG. 7 processing the audio signals of four channels together, the video data interleavlng unit 34a processes the video data of two channels together. When using the video encoder 22 having such internal constitution, it is possible to record video signals of two channels in the optical disk having the format as shown in FIGS. 23a to 23d.

Detailed Description Text - DETX (55):
FIG. 13 is a block diagram showing an example of internal constitution of the modulation recording circuit 17 in FIG. 6. The modulation recording

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